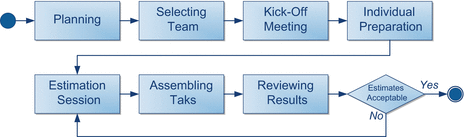
**Wideband Delphi Estimation Technique.**

The Wideband Delphi estimation method is a technique for estimating project workload based on participant consensus. The main advantages of Wideband Delphi are simplicity of implementation, low cost, and no need for historical data.

**Steps of Wideband Delphi:**



**Planning and Selection:**

- Selecting qualified teams is an important part of producing accurate estimates.

- Team members must be willing to assess each task honestly and should be willing to work with the rest of the team.

- Have an understanding of the organization's needs and past engineering projects. Knowledge of engineering projects in order to make educated estimates.

- The team should include representatives from all areas of the development team: managers, developers, designers, architects, analysts, technical writers, contributors, etc.

- Facilitators, or called moderators, should be familiar with the Delphi process, but should not have anything to do with the Delphi results.

**Kickoff Meeting:**

Provide vision, scope, and other documentation to members.

- The statement of objectives for the estimation meeting should be agreed upon by the project manager and the facilitator and distributed to the team prior to the meeting.

- It should be no more than a few sentences describing the scope of work to be estimated. For example: generate estimates for phase 1 programming and testing of project A.

- The conference includes these activities:

1. The moderator explains the wideband Delphi method to any new evaluator.

2. If any team member has not read the vision and scope and supporting documentation, the facilitator will review it with the team.

3. The host reviews it with the team.

4. The reviewer reviews the goals of the evaluation meeting with the team and checks if a team member has the knowledge to contribute.

5. The team discusses products under development and brainstorms hypotheses.

6. Generate a task list of 10-20 main tasks. These tasks represent the highest level of the work breakdown structure.

7. Agreed units of estimate (days, weeks, pages).

**Individual Preparation:**

After initiating the meeting, the facilitator writes down the assumptions and a task generated by the team and distributes them. The team member independently generates a set of preparation results, including:

1. Estimates for each task

2. Any additional tasks that should be included in WBS (Work Breakdown Structure).[10]The WBS is a hierarchical decomposition of the total scope of work to be carried out by the project team to accomplish the project objectives and create the required deliverables. Each descending level of the WBS represents an increasingly detailed definition of the project work.

**Estimation Session:**

- The moderator collects all estimates. Draw the estimated total on a line on the whiteboard and tabulate it.

- The estimation (one neither the moderator nor any team member） reads out clarifications and revisions to the list of tasks written on the estimator. Propose new or changed tasks, discovered hypotheses, or questions. No specific estimated time is discussed.

- The team resolved problems or disagreements. Since specific estimated times are not discussed, these disagreements are usually about the task itself and are often resolved by adding assumptions.

- Estimators modify their personal estimates by filling in the "Delta "column on the form.

**Assemble Tasks**

- The project manager works with the facilitator to gather all the results from the individual preparation and estimation meAssemble Tasks

- The project manager works with the facilitator to gather all the results from the individual preparation and estimation meeting.

- The project manager removes excess content and resolves remaining estimate differences to produce a final to-do list, as well as estimates of effort - assumptions are summarized and added to the list. Update assumptions in Visio files and other files.

- The project manager should create spreadsheets listing the final estimates that everyone comes up with. A spreadsheet should indicate best and worst cases,

- Any tasks that differ significantly should be flagged for further discussion.

- The final task list should be in the same format as the individual preparation results.

**Review Results:**

- Once the results are ready, the project manager holds a final meeting to review the estimates with the team. The objective of the meeting was to determine whether the results of the meeting were sufficient for further planning. The team should determine if the estimate makes sense and if the range is acceptable. They should also check the final to-do list to verify that it is complete.

- There may be one area that needs improvement. For example, a task may need to be broken down into sub-tasks. In this case, the team might agree to hold another estimation session to break down the tasks into their respective sub-tasks and estimate each sub-task. This is also a good way to handle any task where there is a big difference between the best and worst scenarios.